REMARKS

In the Office Action dated July 7, 2005, claims 1 and 9 were rejected under 35 U.S.C. §102(b) as being anticipated by Crawford et al. Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Crawford et al. Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Crawford et al, further view of Richardson et al.

Claims 4, 6 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Crawford et al, further in view of Daniels et al. Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Crawford et al in view of Laurent et al. Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Crawford et al, further in view of Abdel-Malek.

In response, independent claim 1 has been amended to make clear that the claimed apparatus is for use with a peripheral device that contains a process computer, and includes an interface to that process computer, but the apparatus itself, as claimed, does not encompass the process computer. Claim 1 also has been amended to make clear that the claimed apparatus includes a single structural unit that has a housing containing all of the components that are operable in combination to generate x-rays, including an x-ray tube and a digital control, regulation and storage unit. The digital control, regulation and storage unit is connected to all of the components in the housing of the single structural unit, including the x-ray tube, for controlling operation of the x-ray tube. It is this digital control, regulation and storage unit that has the aforementioned interface to the process computer, and this interface forms a single interface to the process computer for all of the components in the single structural unit.

Support for the amendments to claim 1 is present in the specification as originally filed in the paragraph bridging pages 1 and 2, and in the second and third paragraphs of page 2, as well as page 4, second paragraph.

Applicants respectfully submit that none of the prior art cited by the Examiner discloses or suggests such an apparatus.

The single structural unit disclosed and claimed in the present application has a housing that contains the x-ray tube and the digital control, regulation and storage unit, as well as all other components that function in combination to operate the x-ray tube. Moreover, the digital control, regulation and storage unit controls or operates all of these other components that are associated with the operation of the x-ray tube, such as controlling heating of the cathode, controlling cooling, monitoring the temperature of the anode, controlling the rotational speed of the anode, etc.

This single structural unit having a common housing for all of these components is ideally suited for use as a removable component in an x-ray computed tomography apparatus, with the digital control, regulation and storage unit having an interface to the peripheral process control computer of such a computed tomography apparatus, this interface of the digital control, regulation and storage unit forming a single interface to the peripheral process computer for all of the components contained in the common housing of the structural unit.

When such a single structural unit is disassembled from the remainder of the computed tomography apparatus, the historical operation and functioning of all of the components contained within the common housing can be easily determined by reading out information, through the aforementioned interface, from the digital control, regulation and storage unit.

The Crawford et al reference relied upon by the Examiner is an example of conventional systems of the type described in the introductory portion of the present specification, wherein the x-ray tube is a separate component from the component used to heat the cathode, the cooling system, the device for rotating the anode, and temperature monitoring devices. Because all of these devices are separate from each other, even though they are electrically interconnected to operate the x-ray tube, each device must be separately connected to the peripheral computer that is used to operate the overall computed tomography apparatus. It is thus much more time consuming to assemble all of these components for operating a conventional x-ray tube. Moreover, when these components are disassembled, the overall operation of the conventional x-ray tube cannot be checked by reading out all of the relevant information from a single source, namely via the single interface from the inventive digital control, regulation and storage unit. In conventional systems, data must be collected (if it is collected at all) in the peripheral computer, and when the x-ray tube is disassembled from the peripheral computer, the x-ray tube and its data are then also separated from each other. This is unlike the single structural unit with the common housing disclosed and claimed in the present application, wherein all components, and all relevant data, are always maintained together in the single structural unit, and a single interface is available for reading out this data.

As noted above, it is clear from the disclosure of Crawford et al that the x-ray tube is a component that is mounted on the rotating unit of the gantry, but it is clear from Figures 1 and 2 and column 9, lines 23-25 that the gantry cannot be considered to be the same, or the equivalent of, the single structural unit disclosed and claimed

in the present application. Moreover, the gantry does not have or represent a common housing for all of the components mounted thereon.

Moreover, the x-ray tube control system 136 in the Crawford et al reference is not incorporated in a common housing with the x-ray tube to form a single structural unit.

The Crawford et al reference therefore does not disclose all of the elements of independent claim 1, and thus does not anticipate that claim. Claim 9 adds further structure to the novel combination of claim 1, and is therefore not anticipated by Crawford et al for the same reasons discussed above in connection with claim 1.

With regard to the numerous rejections under 35 U.S.C. §103(a), Applicants do not have a significant disagreement with the Examiner regarding the Examiner's statements concerning the teachings of the individual secondary references combined with the Crawford et al reference in those respective rejections. For the above reasons, however, even if the Crawford et al system were modified in accordance with the teachings of any of those secondary references (Richardson, Daniels et al, Laurent et al or Abdel-Malek), the subject matter of respective dependent claims 2-8 still would not result.

None of those dependent claims, therefore, would have been obvious to a person of ordinary skill in the field of x-ray system design under the provisions of 35 U.S.C. §103(a), based on the teachings of Crawford et al and any of the secondary references.

All claims of the application are therefore submitted to be patentable over the teachings of the references of record, and early reconsideration of the application is respectfully requested.

Submitted by,

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